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RI, MC&G file

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4 October 1971

MEMORANDUM FOR:



25X1

SUBJECT : Notes on the Technical Exchange
Within the MC&G Community,
held on 22-23 September 1971

REFERENCES : a. My Memo re DIA Briefing
on 22 March, dated 22 March 1971
b. My Memo re Conference at
TOPOCOM on 23 March, dated
29 March 1971
c. My Memo re Conference at
NAVOCEANO on 30 March,
dated 6 April 1971
d. My Memo re Visit to ACIC on
6 April, dated 15 April 1971
e. My Memo re Conference at ACGS
on 7 April, dated 19 April 1971

1. The last technical exchange between the U. S. civil and military agencies was held in late March and early April of 1971, and was sponsored by the DoD MC&G community. DIA, TOPOCOM, NAVOCEANO, ACIC, and ACGS were hosts, and the discussions are recorded in the above references. The subject technical exchange was hosted by the Topographic Division of the USGS, which held an all-day session in the CIA auditorium and two half-day sessions, one at the Topographic Division's Office of Research and Technical Standards (Research Center) at 1340 Old Chain Bridge Road, McLean, Virginia, and the other at the Special Projects Office (SPO) at Reston, Virginia (see attached Agenda, Tab A).

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2. Mr. Robert Lyddan, the Chief Topographic Engineer of the USGS and Head of the Topographic Division, welcomed representatives of the several interested civil and DoD mapping agencies. To place the Topographic Division in context, he first described the organization of the USGS, noting that the current Acting Director is Mr. Radlinski, who formerly was in the front office of the Topographic Division. (The organization chart of the USGS is attached as Tab B.) Many people, when the USGS is mentioned, think of it primarily as a map-making organization. As you can see, one Division is interested in all aspects of geological studies and exploration, the Conservation Division concentrates largely on problems relating to the extraction of minerals from Federal lands and the continental shelf, and another Division is concerned with all types of water resources and their use. The Computer Center Division is relatively new, has an IBM 360-65 system with satellite systems, of models 360-20 and 360-30, at regional offices. In fact the Topographic Division, in its FY 1971 budget, carried \$600,000 for support from the Computer Center. Also, you will note that the EROS Program is directly under the Office of Director of the USGS.

3. Bob Lyddan then described the organization of the Topographic Division, responsible for standard and special map compilation, drafting, revision, and reproduction of maps and related material pertaining to the United States. Assisting his immediate Office is the Office of Plans and Programs, now headed by Mr. Sibert, and the Office of Research and Technical Studies (Research Center), under Mr. M. M. Thompson with Headquarters in McLean, Virginia. Also responsive to his Office are the Special Projects Office (SPO) at Reston and the Branch of Special Maps in Silver Spring, Maryland. These two units will soon be combined at Reston, with the latter Branch occupying a building adjacent to the SPO building. It is intended that several of the personnel of the latter Branch will be cleared for compartmented work as an assist to the primary SPO mission. Under the Chief Topographic Engineer, and as part of the Topographic Division, are four Regional Centers; namely the Atlantic, Central, Rocky Mountain, and Pacific Regional Offices.

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4. To give you an idea of the size of the Topographic Division, including Regional Offices, I am listing the number of personnel at the end of FY 1971, as stated by Bob Lyddan:

Engineers	355
Cartographers	163
Geographers	7
Technicians	986
Wage Board	227
Adm. & Clerical	143
Other	<u>12</u>
Total	1,893

Bob Lyddan intends to initiate a study to provide greater understanding of the kinds of people and skills that will be required during the next two decades in a centralized U. S. civil mapping organization.

5. Mr. Sibert noted that the FY 1971 funds for the Topographic Division amounted to \$37,976,000 of which \$3,901,000 were cooperative payments by the State Governments. I should point out that the SPO budget for FY 1971 ran around at most \$850,000, and the Office of Research and Technical Studies probably did not spend more than \$1,500,000 in FY 1971. This is an educated guess since there is not a separate budget item for the operations of that Office.

6. Actually only \$28,000,000 were budgeted for FY 1971 for the compilation, revision, and publication of the established standard map series of the National Topographic Map Program. During that year, 1,528 new 1:24,000 scale map sheets, 978 revisions of the 1:24,000 scale map sheets, one new 1:250,000 scale map sheet, and 45 revisions of the 1:250,000 scale map sheets were published. Of course there was undoubtedly a substantial backlog of revisions of 1:250,000 scale map sheets ready for publication as a result of work at the SPO at Reston. The basic 1:24,000 scale map series will probably not be completed one time over within the next ten years.

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At present, about 51 percent of the 1:24,000 scale series is completed and 3,100 of these sheets are under revision. When combined with the completed 1:62,500 scale maps, about 84 percent of the United States has been covered by both series. The Topographic Division is obligated, by agreement with the Army in 1958, to maintain the 1:250,000 map series (473 sheets) originally compiled by the Army Map Service. This task was given to the SPO in 1968. (You may be interested to know that the Division has published 72 maps of Antarctica the scale of 1:250,000 with funds received from the National Science Foundation.)

7. Over the past decade, as pointed out by one of the briefers, costs per square mile for conventional mapping have gone up whereas manhours have gone down for completion of individual quadrangles. Total funds have increased over the years, but chiefly in response to increased salaries (inflation) rather than because of expanded programs.

8. Mr. Sibert discussed future special mapping programs that require attention. Most of these will be responsive to studies of urban metropolitan areas, wetlands, and flood plains. These studies will often require orthophoto maps at scales varying from 1:5,000 to 1:10,000. (New Jersey currently requires photo maps at 1:600 scale from near infra-red photography.) These special programs will not detract from the basic series program and will have to be accomplished under contract.

9. Mr. Bermal and Mr. Sher described the planning and coordination process, placing emphasis on the "A-16" requests, expressed in three priority categories, which are regularly received from 28 different Federal agencies. This is the basis of the National Topographic Mapping Program (NTMP). The new National Atlas, now available at \$100 a copy, was completed with the cooperation of 60 separate U.S. agencies. Efforts are continuing to bring together representatives from all civil agencies to determine their mapping needs and the status of any mapping activities they themselves may be conducting.

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Particular interest is directed to duplicatory needs of different agencies. It is hoped that all civil map data and map sheets of the United States will be obtainable through the good offices of a National Cartographic Information Center (NCIC) still to be established.

10. Fred Doyle discussed the potentials of mapping photography from current high altitude aircraft and future satellites. He described the results obtained from the experiment known as SO 65 carried on the Apollo 9 in March 1969. Four 70 mm Hasselblad cameras with 80 mm lenses were mounted as a multispectral package in the hatch window. Some impressive photography was obtained. The area around Phoenix, Arizona, was covered by two frames of the red band which were rectified and enlarged 10X to make a photo map at the scale of 1:250,000. This map was widely publicized as a qualified success. He mentioned the use made of NASA's RB-57F aircraft flying at 60,000 feet with 12-inch and 6-inch mapping cameras in its pod. Rectified photography was enlarged to construct 1:24,000 scale maps. There was reference to the use of the advanced RC-135Q-28 mapping system in support of USGS mapping requirements in Alaska. Block coverage of 20,000 square statute miles has been accomplished there, through DIA cooperation. Fred Doyle also spoke of the U-2C aircraft to be used by NASA to simulate ERTS imagery and of the possibility of installing 12-inch and 6-inch focal length frame cameras for mapping. It is expected that the first ERTS will be launched in the spring of 1972, at which time the EROS Data Center at Sioux Falls will become very important as the storage center for the ERTS data. Not only will it be a training center, but also a sales center for the ERTS imagery.

11. Fred Doyle mentioned the Earth Resource Experiment Package (EREP) of the SKYLAB and the proposed inclusion of the 18-inch focal length Earth Terrain Camera. To my surprise, he spoke of a potential mapping satellite, suggested at the NAS-Woods Hole symposiums of several years ago, which might carry a 12-inch terrain camera, a 24-inch compilation (pan?) camera, and stellar cameras, with recovery of film. He emphasized that this is not an approved program. He ended by saying he was not sure of the marketability of the data to be derived from the ERTS. In subsequent

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discussion, it was noted that the USGS has not considered the cost trade-offs of cheap satellite mapping systems, and has not studied the use of U-2 photographic coverage in comparison to cost of satellite photography.

12. I did not attend the conference on 23 September at the SPO, but I understand that the number of personnel there is remaining essentially stable, although many have been working on collateral projects because of the reduced acquisition of special materials over the past year. With current developments, this picture should change for the better with respect to the map revision program.

13. I did attend the visit to the Office of Research and Technical Standards at McLean. Out of a total of about 115 employees, 40 are in Washington working for the Board on Geographic Names. Of the remaining 75, about 50 are truly research engineers. They are concerned with R&D problems of semi-automated cartography, digitization of terrain, orthophotomapping, remote sensing, including calibration of the RBV system for ERTS, etc. I have this Office's annual report if you are interested.

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Attachments
Tabs A and B.

AGENDA FOR USGS TECHNICAL EXCHANGE
GOVERNMENT MAPPING, CHARTING, AND GEODESY COMMUNITY

September 22, 1971

Bubble Auditorium, Langley, Va.

9:00 - 9:30	General summary of USGS mapping operations.....	R. H. Lyddan
9:30 - 9:50	Development of national mapping program.....	W. Sibert
9:50 - 10:10	Planning domestic and foreign mapping projects...	P. F. Bermel
10:10 - 10:30	Break	
10:30 - 10:50	Resources for mapping programs.....	L. H. Borgerding
10:50 - 11:10	National Cartographic Information Center.....	D. L. Pinkerton
11:10 - 11:30	Federal mapping coordination.....	M. B. Scher
11:30 - 11:50	Discussion	
11:50 - 1:00	Lunch	
1:00 - 1:20	Research and technical standards for mapping.....	M. M. Thompson
1:20 - 1:40	Mapping photography.....	A. N. Brew
1:40 - 2:00	Development of equipment for mapping.....	H. B. Loving
2:00 - 2:20	Modern photogrammetric techniques.....	R. R. Mullen
2:20 - 2:40	Break	
2:40 - 3:00	Field surveys for modern mapping.....	J. T. Long
3:00 - 3:20	Current trends in cartography.....	A. F. Striker
3:20 - 3:40	Applications of space technology in mapping.....	F. J. Doyle
3:40 - 4:00	Discussion	

Tab A

September 23, 1971

Tour of Topographic Division Research Center, McLean, Va..... J. G. Lewis

Groups A and C - 9:00 - 11:30

Group B - 1:00 - 3:30

11:30 - 1:00 Lunch and transportation

Tour of Special Projects Office, Reston, Va..... R. E. Fordham

Group B - 9:00 - 11:30

Group A - 1:00 - 3:30

Groups A and B will include participants having special clearance.

U.S. GEOLOGICAL SURVEY TOPOGRAPHIC DIVISION

Tab A

WASHINGTON METROPOLITAN AREA OFFICES

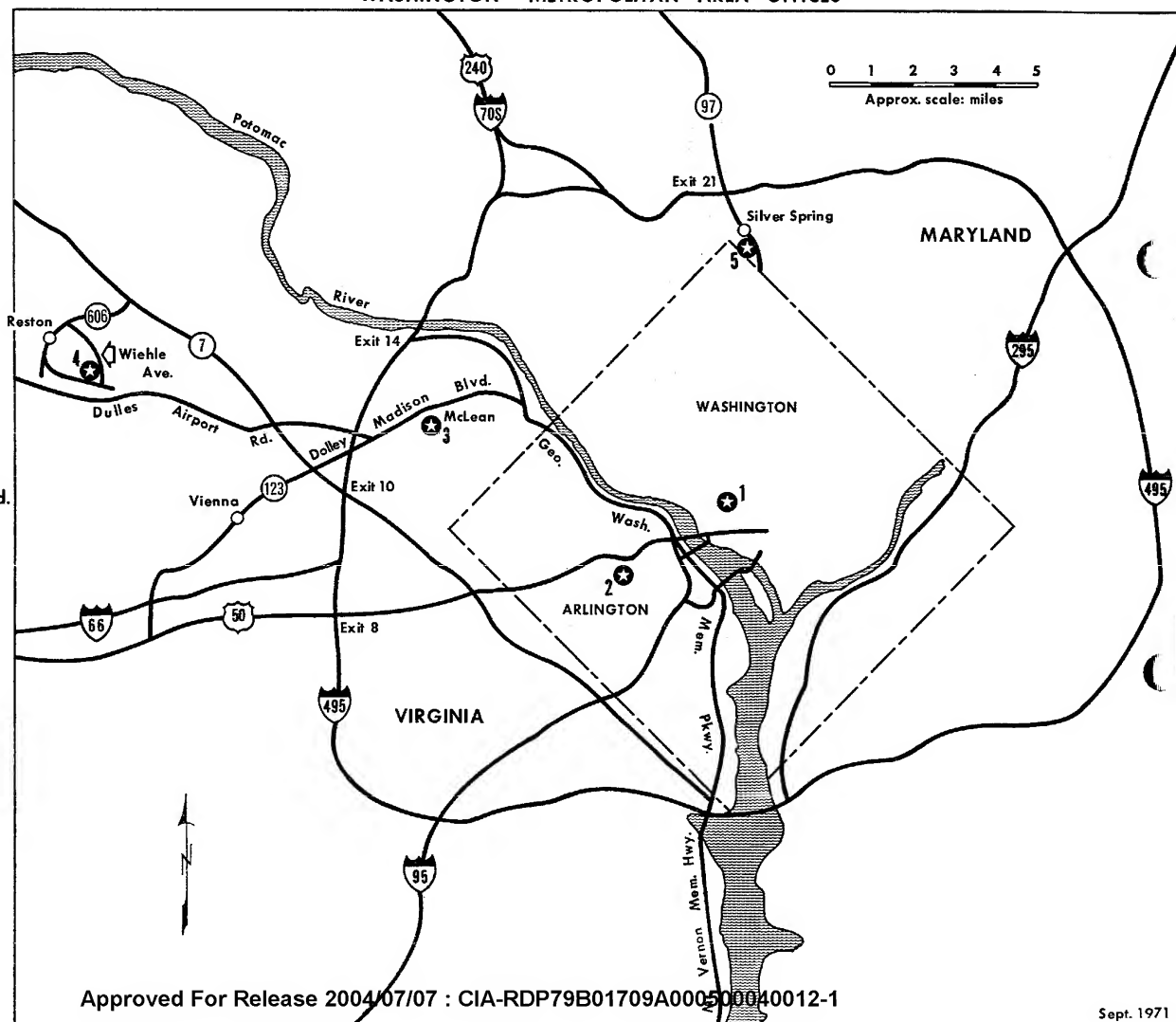
1. Washington Headquarters
GSA Building
18th & F St. NW
Washington, D.C. 20242

2. Atlantic Region Office
1109 N. Highland St.
Arlington, Va. 22210

3. Research Center
1340 Old Chain Bridge Rd.
McLean, Va. 22101

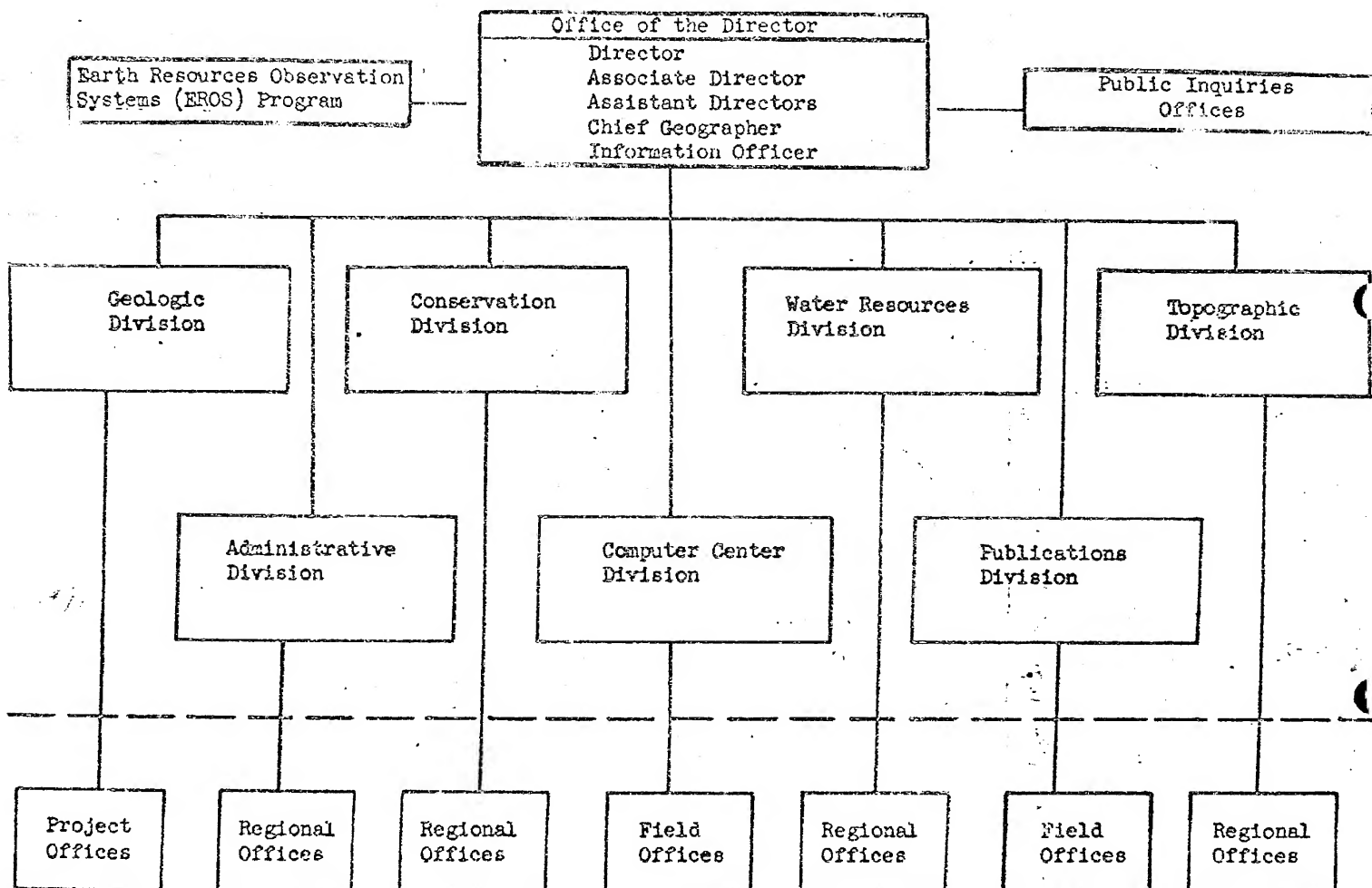
4. Special Projects Office
Isaac Newton Square
Reston, Va. 22070

5. Branch of Special Maps
Blair Building
8300 Colesville Rd.
Silver Spring, Md. 20910



Organization - Geological Survey

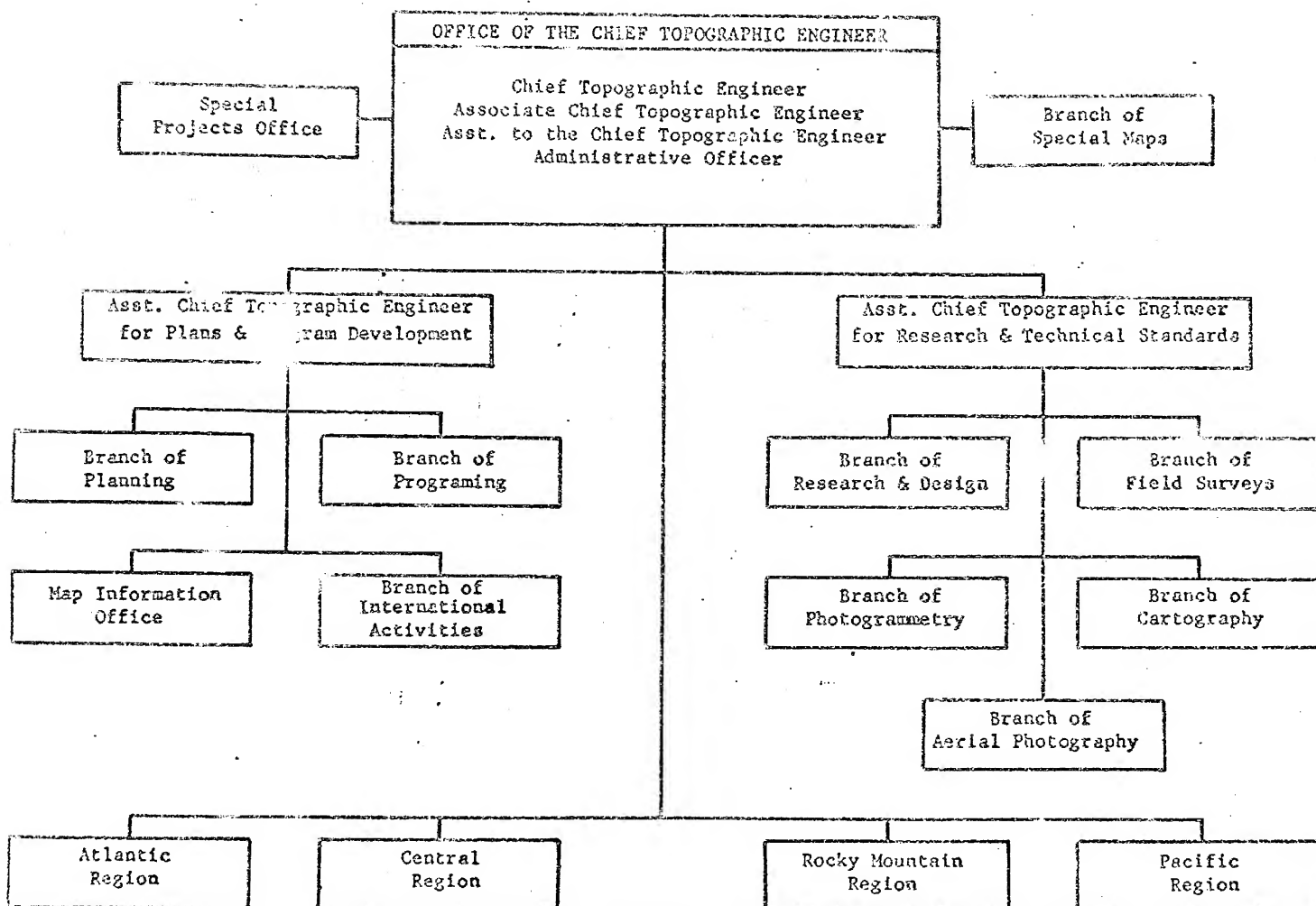
10-2-70 (Release No. 1200)
Tab B



Note 1. See separate Division Charts for Branch organization.

GEOLOGICAL SURVEY
ORGANIZATION - TOPOGRAPHIC DIVISION

Part 120, Chap. 6
3-11-70 (Rel. No. 1167)
Tab B



Tab B

